

REMARKS

Claims 1-17 now stand in the application, new claims 14-17 having been added.

Reconsideration of the application and allowance of all claims are respectfully requested in view of the above amendments and the following remarks.

Applicants thank the Patent Office for indicating that claim 13 is allowed.

The Patent Office objects to claim 6 as being dependent upon a rejected base claim.

Applicants thank the Patent Office for indicating that claim 6 would be allowed if rewritten in independent form. However, instead of rewriting claim 6 in independent form, Applicants respectfully traverse the prior art rejections for the reasons set forth below.

1. Claims 1, 2, 5, 7, 8, 11 and 12 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Onaka *et al.* (U.S. Patent No. 6,510,000). Applicants traverse the § 102(e) rejection of claims 1, 2, 5, 7, 8, 11 and 12 for at least the reasons discussed below.

The Patent Office has asserted that Onaka *et al.* teach, *inter alia*, a laser pump source for producing wideband pump radiation signal having a plurality of different wavelengths, and refers to Figure 9 of Onaka *et al.* Applicants respectfully disagree.

In Figure 9 of Onaka *et al.*, each of excitation light source units 601 and 603 has four excitation laser diodes, and each of WDM couplers 7A and 7B duplexes the wavelengths of four rays of light. This is the use of multiple pump sources to produce multiple wavelengths, as in the acknowledged prior art in the present application, whereas claim 1 very clearly recites a single laser pump producing a wideband pump radiation signal having a plurality of different radiation

wavelengths. Onaka *et al.* fail to teach or suggest the single multiwavelength laser pump of claim 1.

With respect to the Patent Office's argument that the recitation "producing a wideband pump radiation signal having a plurality of different radiation wavelengths" is a functional limitation, Applicants submit that this argument is moot due to the amendments to claim 1. As discussed above, Onaka *et al.* produces a plurality of wavelengths from a "plurality" of single wavelength pumps. The Patent Office has interpreted the unit 601 as a single source, which is an imprecise interpretation. The light sources of Onaka *et al.*, as clearly described from column 4, line 60 to column 5, line 38, are sources 81 to 86 and each of these sources produces a single wavelength. Unit 601 comprises a plurality of light sources and this is the arrangement that the present invention attempts to avoid. The structure of the apparatus recited in claim 1 is clearly different than the structure of the apparatus of Onaka *et al.*

Based on at least the foregoing reasons, Applicants submit that claim 1 is allowable over Onaka *et al.*, and further submit that claims 2, 5, 7 and 8 are allowable as well, at least by virtue of their dependency from claim 1. Applicants respectfully request reconsideration and withdrawal of the § 102(e) rejection of claims 1, 2, 5, 7 and 8.

With respect to independent claim 11 and 12, Applicants submit that claims 11 and 12 are allowable over Onaka *et al.* for at least reasons analogous to those discussed above with respect to claim 1. Applicants respectfully request reconsideration and withdrawal of the § 102(e) rejection of claims 11 and 12.

2. Claims 1, 3, 4, 9 and 10 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Evans *et al.* (U.S. Patent No. 6,657,774) in view of Agrawal, *Fiber-Optic Communication Systems* (1997). Applicants traverse the § 103(a) rejection of claims 1, 3, 4, 9 and 10 for at least the reasons discussed below.

As previously discussed, Evans *et al.* disclose, *inter alia*, an amplifier system with distributed and discrete Raman fiber amplifiers. As shown in Figure 1 of Evans *et al.*, a 1450 nanometer pump (22) provides counter propagating pump light to both a dispersion compensating fiber (18) and a distributed Raman fiber amplifier (12). Additional pumps 22A may be utilized to *provide more pump power*. See, e.g., col. 4, lines 10-25 of Evans *et al.* As shown in Figure 4 of Evans *et al.*, two sets of pumps (22A, 22B) are utilized, and one of the pumps (22A) is being shared by the distributed Raman fiber amplifier and a discrete Raman fiber amplifier (14). The other pump (22B) supplies pump light to the distributed Raman amplifier. This configuration provides *more pumping power* to the amplifier system. See col. 4, lines 47-58 of Evans *et al.* There is no disclosure, however, that a single pump in Evans *et al.* is a single multiwavelength laser pump as recited in claim 1, nor is there any teaching or suggestion that all the pumps of Evans *et al.* even produce different wavelengths. The Patent Office admits that Evans *et al.* fail to teach or suggest a wideband pump radiation signal.

In addition, Evans *et al.* fail to teach or suggest independently adjusting power control of each of a plurality of different radiation wavelengths of the wideband pump radiation signal. Evan *et al.* disclose that the amount of light provided by the pump may be controlled via input and output 2% tap couplers (25A, 25B), photo diodes (26), feedback circuit to a voltage-

controlled switch coupler (24) and a variable optical attenuator VOA (26). However, there is nothing in Evans *et al.* teaching or suggesting that the power control of each of a plurality of different radiation wavelengths can be adjusted *independently*.

The Patent Office combines Evans *et al.* with Agrawal to overcome the acknowledged deficiencies of Evan *et al.* However, the combination of Evans *et al.* and Agrawal still fails to teach or suggest a single multiwavelength laser pump as recited in claim 1, nor does the combination teach or suggest that the power control of each of a plurality of different radiation wavelengths can be adjusted independently. While Agrawal arguably discloses the amplification of a particular wavelength, Agrawal fails to teach or suggest means for adjustable independent power control of each of a plurality of different radiation wavelengths of a wideband pump radiation signal, as recited in claim 1. Use of Agrawal to provide adjustable independent power control of each different radiation wavelength is unnecessarily complex, and would not be considered by one of skill in the art. Thus, Applicants submit that the combination of Evans *et al.* and Agrawal fail to meet the “all limitations” prong of a *prima facie* case of obviousness with respect to amended claim 1.

Based on at least the foregoing reasons, Applicants submit that claim 1 is allowable over Onaka *et al.*, and further submit that claims 3, 4, 9 and 10 are allowable as well, at least by virtue of their dependency from claim 1. Applicants respectfully request reconsideration and withdrawal of the § 103(a) rejection of claims 1, 3, 4, 9 and 10.

AMENDMENT UNDER 37 C.F.R. § 1.116
U.S. APPLICATION NO. 10/022,896
ATTORNEY DOCKET NO. Q67643

New claims 14-17 are added to recite that the multiwavelength source includes only a single pump laser, as described in the Summary of the Invention at page 6. These claims are allowable due to dependent on their respective parent claims as well as the fact that none of the art of record suggests a single pump laser producing a wideband pump signal.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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